

ABSTRACT OF THE DISCLOSURE

09315390-052099

A thermoplastic multi-layer composite structure is disclosed and consist in a first embodiment of a co-extruded acrylic polypropylene outer skin and high melt strength polypropylene substrate which is attached to a first surface of a polypropylene foam core. An inner polypropylene skin can be provided and is attached to a second surface of the foam core. The foam core can either be constructed from an expanded polypropylene or an extruded polypropylene. Where an expanded polypropylene foam core is provided, the foam core is attached to the outer and inner skin through the use of a polypropylene adhesive. Where the extruded polypropylene foam core is provided, the skins can be attached to the foam core through a welding or bonding process in lieu of adhesives. The polypropylene adhesives can also be utilized for attaching the skins to the extruded foam core. Additionally, the extruded foam core can vary in density to provide a composite foam core. Preferably, the various densities of the composite foam core are arranged such that the lowest density foam is provided at the center of the core and the varying densities of the foam core extend outward from the center in numerical order. In an alternative embodiment, an all acrylic composite multi-layered structure is provided.